

ACCESSION #: 9610040086

LICENSEE EVENT REPORT (LER)

FACILITY NAME: Indian Point Unit No. 2 PAGE: 1 OF 4

DOCKET NUMBER: 05000247

TITLE: Reactor Trip on Turbine Trip due to High Level in Steam

Generator 23

EVENT DATE: 08/22/96 LER #: 96-016-00 REPORT DATE: 09/23/96

OTHER FACILITIES INVOLVED: DOCKET NO: 05000

OPERATING MODE: N POWER LEVEL: 021

THIS REPORT IS SUBMITTED PURSUANT TO THE REQUIREMENTS OF 10 CFR SECTION:

50.73(a)(2)(iv)

LICENSEE CONTACT FOR THIS LER:

NAME: James J. Maylath, Senior Engineer TELEPHONE: (914) 734-5356

COMPONENT FAILURE DESCRIPTION:

CAUSE: X SYSTEM: JB COMPONENT: PCO MANUFACTURER: F052

REPORTABLE NPRDS: Y

SUPPLEMENTAL REPORT EXPECTED: NO

ABSTRACT:

On August 22, 1996, during startup of the unit, approximately an hour after the generator was connected to the grid, a turbine trip occurred. This initiated a reactor trip with all control rods fully inserting. The generator tripped 30 seconds following the reactor trip as designed. The cause of the turbine trip was a high level in Steam Generator 23. This level excursion occurred during the switching of the main feedwater regulating valves from manual to automatic operation. Due to inadequate level control in the automatic mode, the operator switched back to the manual mode and attempted to close the main feedwater regulating valve that was supplying Steam Generator 23. The valve went open, although the controller was calling for the valve to close, resulting in an overfeeding of

Steam Generator 23. This initiated the high steam generator level turbine trip. Since reactor power was 21% at this time, the turbine trip initiated a reactor trip. The most likely cause of the failure of the main feedwater regulating valve supplying Steam Generator 23 was debris in the instrument air line at the valve positioner. Following the reactor trip, all safety related equipment performed as expected, and the reactor was safely brought to hot shutdown conditions.

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#### PLANT AND SYSTEM IDENTIFICATION:

Westinghouse 4-Loop Pressurized Water Reactor

#### IDENTIFICATION OF OCCURRENCE:

Reactor trip on turbine trip due to high level in Steam Generator 23

#### EVENT DATE:

August 22, 1996

#### REPORT DUE DATE:

September 23, 1996

#### REFERENCES:

Condition Identification and Tracking System (CITRS) No. 96-E01954

#### PAST SIMILAR OCCURRENCE:

LER 85-006, 88-019, 92-002 and 92-007

#### DESCRIPTION OF OCCURRENCE:

On August 22, 1996 at 0357 hours, during startup of the unit with the reactor at 21% power, the turbine tripped on high level in Steam Generator 23. Since reactor power was above the P-8 Turbine Trip/Reactor Trip Permissive Interlock (20% reactor power), the reactor tripped immediately following the turbine trip, and, 30 seconds later, the

generator tripped as designed. All control rods fully inserted into the core with the reactor trip as designed. All safety related equipment performed as expected, and the reactor was safely brought to hot shutdown conditions.

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#### ANALYSIS OF OCCURRENCE:

This report is being made because an actuation of the Reactor Protection System (RPS) occurred on August 22, 1996. This actuation is reportable under 10 CFR 50.73(a)(2)(iv). Following the reactor trip, all safety related equipment functioned as designed, and the reactor was safely brought to hot shutdown conditions. There were no injuries to personnel or damage to equipment as a result of this event.

#### CAUSE OF OCCURRENCE:

The cause of the turbine trip was a high level in Steam Generator 23. This level excursion occurred during the switching of the main feedwater regulating valves from manual to automatic operation. Because the level in Steam Generator 23 could not be properly controlled in the automatic mode, the operator switched back to the manual mode. The operator then attempted to close the main feedwater regulating valve that was supplying Steam Generator 23 in order to mitigate the rise in level. However, the valve went open, although the controller was calling for the valve to close. This resulted in an overfeeding of Steam Generator 23, which initiated the high steam generator level turbine trip.

The most likely cause of the failure of the main feedwater regulating valve supplying Steam Generator 23 was debris in the instrument air line at the nozzle of the current to pneumatic converter to the valve positioner. This debris could have clogged the nozzle causing a rapid rise in valve actuator pressure. The resulting high pressure would cause the valve to open and remain open until pressure blew the debris clear of the nozzle. At this point, the valve would go to its demanded position which was closed for this event. Inspection of the current to pneumatic converter following the event did find debris. All other components associated with the main feedwater regulating valves were found to operate properly.

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#### CORRECTIVE ACTION:

When the reactor trip occurred, the control room operators took immediate actions in accordance with emergency operating procedures. The reactor was safely brought to hot shutdown conditions.

Subsequent investigation and testing was done on all four main feedwater regulating valves, including their current to pneumatic converters and instrument air supplies. Debris was found at the current to pneumatic converter for the main feedwater regulating valve supplying Steam Generator 23. This debris was removed and the current to pneumatic converter was cleaned and placed back into service. No debris was found on the three remaining main feedwater regulating valves and current to

pneumatic converters or in the instrument air supplies. As a precautionary measure, the other three current to pneumatic converters' were also cleaned. All other components associated with the main feedwater regulating valves were found to operate properly, and there were no anomalies observed on other components that are supplied by instrument air.

The debris that was removed from the main feedwater regulating valve supplying Steam Generator 23 was sent to an independent laboratory for analysis to determine its source. The operators were made aware of the possibility of debris in the Instrument Air System and the valves that could be affected. This issue of instrument air debris will be addressed in operator training.

Con Edison has complied with all the actions of Generic Letter 88-14, "Instrument Air System Evaluation", as was confirmed in your August 16, 1990 letter, "Evaluation of Instrument Air System per Generic Letter 88-14 for Indian Point Nuclear Generating Unit 2 (TAC No. 71671)". At that time, a preventative maintenance program was established that provided for periodic filter replacements, monitoring of instrument air quality (dew point is maintained at approximately -40 degF) and trending of conditions on instrument air and components that are supplied by it. If necessary, this program will be reevaluated to consider periodic cleaning of components, such as the main feedwater regulating valves and current to pneumatic converters, following completion of the laboratory

analysis of the debris.

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Stephen E. Quinn

Vice President

Consolidated Edison Company of New York, Inc.

Indian Point Station

Broadway & Bleakley Avenue September 23, 1996

Buchanan, NY 10511

Telephone (914) 734-5340 Re: Indian Point Unit No. 2

Docket No. 50-247

LER 96-16-00

Document Control Desk

US Nuclear Regulatory Commission

Mail Station PI-137

Washington, DC 20555

The attached Licensee Event Report 96-16-00 is hereby submitted in  
accordance with the requirements of 10 CFR 50.73.

Very truly yours,

Attachment

cc: Mr. Hubert J. Miller

Regional Administrator - Region I

US Nuclear Regulatory Commission

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